CAPABILITIES REQUIREMENT (CR) FOR SYSTEM DEVELOPMENT AND INTEGRATION SERVICES

C.1 INTRODUCTION

The Systems Development and Integration (SDI) contractor(s) shall provide the necessary skilled staff, tools, and other resources to analyze, design, develop, deploy, maintain, and enhance United States Patent and Trademark Office (USPTO) systems. The services needed to perform life cycle activities include system design and analysis, programming, testing, integration, customer training (to include technical personnel), implementation, operations, system/software maintenance, project-specific system engineering, information/software engineering, product assurance, project management, and other related services and products. Software products and hardware are needed for system life cycle support of development, maintenance, and enhancement activities. Some integration efforts may result in providing systems for total solutions to meet the business requirements. In the course of life cycle activities, the contractor(s) shall provide feedback to the USPTO to help evolve and improve the USPTO's life cycle processes and enterprise architecture.

This work will be performed for existing automated information systems and those future systems initiated during the contract period of performance. The "USPTO Strategic Information Technology Plan for Fiscal Years 2004-2009" provides a high-level description of the following programs and systems/projects that USPTO anticipates will be supported, at a minimum, by the Systems Development and Integration (SDI) contract(s).

The USPTO will establish the strategic and tactical plans, develop the necessary technical standards and Technical Reference Model to be used by the contractor(s), define the requirements governing the overall integration of new and reengineered systems with existing USPTO systems, and provide overall management of the projects and programs. The Systems Development and Integration (SDI) contractor(s) will be accountable for the internal integration of individual subsystems subject to the overall constraints of the external interfaces. In this context System Development Integration (SDI) contractor(s) are expected to help the USPTO structure the systems into subsystems that can be incrementally implemented to facilitate orderly transitions form the current business processes to the target business processes. The USPTO will review these subsystems to ensure consistency with external constraints and careful management of risks.

To support these systems, the contract(s) also will be used to identify, acquire, test, and install Commercial-Off-The-Shelf (COTS) software applications or products that support the system development life cycle. These products may include tools for software components, runtime, relational database management systems (RDBMSs), project management, code and test generators and analyzers, and performance monitoring. Multiple licenses or a site license may be procured to support concurrent software development and maintenance efforts, as deemed necessary and cost effective.

C.2 STANDARDS AND GUIDELINES

The Systems Development and Integration (SDI) contractor(s) shall provide products and services conforming, at a minimum, to the following plans, standards and guidelines. (See also Section J of this solicitation):

> **USPTO 21st Century Strategic Plan**
>
> **http://www.uspto.gov/web/offices/com/strat21/index.htm**
>
> **Office of the Chief Information Officer Strategic Information Technology Plan**
>
> **http://www.uspto.gov/web/offices/cio/sitp/**

Patent & Trademark Acquisition Guideline (PTAG)

http://www.uspto.gov/web/offices/ac/comp/proc/ptagfdrg.pdf

PTO Life Cycle Management (LCM) Manual

http://www.uspto.gov/web/offices/cio/lcm/lcm.htm

The LCM process for a project shall yield, at a minimum, an acceptable Project Management Plan, Requirements Specification, High Level Architecture and/or Solutions Architecture, Test Plan, Operational Support Plan, and Security Plan. In addition, as deemed appropriate by the USPTO designated official, analysis and design models will adhere to Unified Modeling Language (UML current standard release) and will be provided to the USPTO in electronic format for uploading into our Rational system. Any waivers from these steps or products may be granted only on the express written authority of the USPTO designated official.

C.3   WORK TO BE PERFORMED

The System Development and Integration (SDI) contractor(s) shall provide the necessary skilled staff, tools, and other resources to analyze, design, develop, deploy, maintain, and enhance United States Patent and Trademark Office (USPTO) systems, as specified within individual task order and in accordance with the USPTO guidelines. Project plans shall be established and executed in accordance with the prescribed USPTO life cycle management methodology.

C.3.1   System Analysis and Design

The USPTO will require the contractor(s) to provide system development, integration, maintenance, analysis and design staff, tools, and support throughout the system development life cycle. The items to be delivered and the schedule for delivery will be established within the task order(s). The assistance and other items include, but not limited to, the functions defined below.

C.3.1.1   Analysis and Design

To support this task area, the contractor(s) will be required to complete activities such as examine technical, business, and management requirements and/or issues to provide effective solutions for information systems development and maintenance efforts in keeping with USPTO standards and USPTO strategic and tactical direction; perform studies and analyses required throughout the system development life cycle, to include project-specific architectural and security analyses; survey, research, and review information technologies for potential application within the USPTO environment, and acquisition by the contractor(s) or the Government; evaluate commercial off-the-shelf software (COTS) and government off-the-shelf software (GOTS); facilitate requirements sessions and work with programming staff supporting requirements prototype efforts; recommend improvement to existing resources; and use USPTO-and industry- standard automated tools throughout the life cycle. Activities may include, but are not limited to, the following considerations: compliance with legal and regulatory guidance, interoperability, open system environment, security, standards, and data.

C.3.1.2   Documentation

The USPTO will require the contractor(s) to prepare white papers, surveys, studies, documents, acquisition and system specifications, information brochures, engineering designs, support plans, customer-oriented documentation, and on-line help needed to complete any or all system development life cycle phases; review and recommend additions, revisions, and other changes to the latest versions of documents, refine, revise, or update existing documents, and convert documentation developed under previous life cycle management guidance to that required under the current life cycle guidance. The format

and content of these documents will be specified by the USPTO at the time of Task Order issuance. The number of copies, instructions for the media and format for electronic copies, and other instructions about these deliverables will be specified in the task order(s).

C.3.2   Programming

USPTO will require the contractor(s) to provide programming staff, tools, and support. The items to be delivered and the schedule for delivery will be established within the task order(s). The assistance and other items include, but are not limited to, the functions defined below.

C.3.2.1   Develop Software and Database Products

If COTS or Government-furnished products cannot meet automated information system requirements, the USPTO will require the contractor(s) to develop software and structure the physical database: (1) based on Government-approved specifications; (2) using industry-standard systems/software engineering techniques; and (3) following product assurance disciplines. The contractor(s) shall use automated tools, when practical, to generate the software or structure the database. If manual development is required, the contractor(s) shall use modern software development concepts, tools, and techniques. As defects are identified by the contractor(s) or the Government during the Development phase or during testing activities, the contractor(s) shall correct the defects. The contractor(s) support includes:

(a)   Source and Executable Programs
     (1) Electronic versions of all source code
     (2) Electronic versions of all executable object code

(b)   Other Programs
     (1) Electronic versions of source and resulting object code generated by individual compilers, linkers, editors, translators, and other programs used to produce executable code
     (2) Documentation and, if necessary, source code for all utility software (such as programmer's workbenches) used to produce executable code

C.3.2.2   Requirements Prototyping and Proof-of-Concept Testbeds

The USPTO will require the contractor(s) to develop and test prototype programs and databases, and proof-of-concept testbeds, to determine optimal solutions for concept and problems, resulting in the development or modification of requirements. The contractor(s) may also be called upon to develop schedules, to include parallel operations where required, identify the proposed prototyping or proof-of-concept technical approach, and describe anticipated results. This function involves all the activities needed to satisfy the prototype or proof-of-concept objectives to include providing COTS software, hardware, and communications, if required.

C.3.2.3   Upgrade and Tailor COTS and Government-Furnished Products

The USPTO will require the contractor(s) to identify, acquire, test, deliver, and install commercial Off The Shelf (COTS) products (as necessary); and to develop and test upgrades and extensions to Government-furnished or COTS products. USPTO will require the contractor(s) to develop upgrades and extensions: (1) based on Government-approved specifications;(2) using system/software engineering tools and techniques in accordance with USPTO Technical Standards and Guidelines, or other industry-standard tools and techniques approved by USPTO; and (3) following product assurance disciplines. The contractor(s) shall use automated tools, when practical, to generate the software or structure the database. If manual development is required, the contractor(s)shall use modern software development concept, tools, and techniques. As defects are identified by the contractor(s) or the Government during the Development phase or during

testing activities, the contractor(s) shall correct the defects. For developed software (e.g., upgrades, extensions, macros, front-ends), the contractor(s) support includes:

> (A) Electronic versions of source and resulting object code generated by individual compilers, linkers, editors, translators, and other programs used to produce executable code.

> (B) Documentation to be used to produce executable code.

C.3.3 Test and Evaluation

The USPTO will require the contractor(s) to test and evaluate Government-furnished products, COTS, and developed products to verify compliance of the potential module, subsystem, or system with key specifications and functionality prior to delivery to the USPTO. The following describes typical functions associated with test and evaluation.

C.3.3.1 Define Objective and Methodology

This entails defining the objectives, establishing priorities, and developing the functional and technical/performance test methodology. The methodology includes, but is not limited to, the following: functional descriptions and requirements; services level objective; current workload; communications protocols; interfaces to external, non-agency systems; standards used for development and operation; and a description of the data needed for benchmark development.

C.3.3.2 Collect/Develop Data

The USPTO will require the contractor(s) collect or develop technical/performance and workload data, using any preliminary work completed by USPTO or USPTO's contractor(s)s wherever possible. If normalization of the data is required, it will be completed by the contractor(s).

C.3.3.3 Develop Test Plan

The USPTO will require the respective contractor(s) prepare a plan that details the methods and procedures that will be used to execute the tests. The plan addresses requirements, specifies files to be used in developing the tests, describes the data structure analysis techniques to be used, specifies test details (e.g., memory utilization, instruction mix, multiple processing thresholds), and specifies scripts to be used.

C.3.3.4 Design and Develop Test Program (s)

The USPTO will require the contractor(s) design and develop functional and technical/performance test software, data and test scripts. The contractor(s) shall provide the software and data in electronic form.

C.3.3.5 Conduct Tests

USPTO plans to provide a system testbed located in or near USPTO offices in the Alexandria/Arlington, Virginia area, for use by the System Development Integration (SDI) contractor(s)s. The USPTO will require the contractor(s) conduct the unit and integration tests in accordance with the approved Test plan, and record the results of the test. Testing shall validate the program and data for errors, and confirm the reasonableness of performance requirements and support formal qualification tests (FQTs).

USPTO will require the System Development Integration (SDI) contractor(s)s to allow USPTO employees, or employees of other organizations such as USPTO's current IV&V and SETA contractors, to witness testing and to examine exhibits of

work in progress including, but not limited to, 1) source code files, 2) diagnostic output, and 3) output of test and software metrics tools.

The contractor(s) shall resolve concerns identified during USPTO review of test activities and test results, and shall make all necessary revisions to the design and code, perform all necessary retesting, and update the system development files. At completion of testing, the respective contractor shall provide written verification that the tests provide an accurate representation of USPTO functional and technical/performance requirements, and that all delivered components can be integrated with other USPTO systems, Infrastructure, and operations. At USPTO's option, the contractor(s) will provide test scripts, test data, test case suites, test procedures, specifications, and other testing material in electronic form for capture within USPTO's configuration management system.

C.3.4   Implementation

Prior to the initiation of implementation activities the contractor may be required to provide pre-implementation reviews to ensure everything is in place prior to beginning implementation.

As part of the implementation set-up the USPTO may require the contractor to:

1. Unpack products delivered in support of the task.
2. Certify that delivered product items match orders, invoices, bills of lading, and/or configuration item lists.
3. Label product items in accordance with established USPTO configuration management guidelines.
4. Obtain missing items and resolve discrepancies.
5. Maintain and inventory delivered items.
6. Distribute manuals
7. Necessary supplies are in place
8. All involved sites are ready
9. Necessary computer resources are available
10. Personnel have been trained to support the implementation

C.3.4.1   Set-up Implementation

USPTO may require the contractor(s) to ensure that manuals have been distributed, supplies are in place, sites are ready, computer resources are available, personnel have been trained to support the implementation, or other activities required prior to initiation of implementation activities. The contractor(s) may be required to unpack products; check to ensure that delivered product items match orders, invoices, bills of lading, and/or configuration item lists; label product items in accordance with established configuration management guidelines; obtain missing items and resolve discrepancies, maintain and inventory of delivered items; or provide other pre-implementation reviews to ensure everything is in place prior to beginning implementation.

C.3.4.2   Execute Plans

After approval, the respective contractor shall carry out the activities of the Production Installation Plan and Operational Support Plan, in coordination with USPTO. Activities may include, but not be limited to the following: complete the planned conversion of software and data from the existing AIS to the new AIS, if applicable, and coordinate installation of products; transport products to end-user and other sites at the USPTO; assemble and install hardware products; load and tailor software products; load data; and check the installation area to ensure everything is running. The contractor(s) shall carry out implementation activities to minimize interference with normal USPTO activities; this will typically require

activities to take place after USPTO business hours. Following completion of implementation activities, the USPTO may require the respective contractor participate in a post-installation review.

C.3.5   Transition to Operations

Transition to operations encompasses those functional and operational activities required for the successful transition of information systems and databases from the Deployment life cycle phase to Operations life cycle phase. The items to be delivered and the schedule for delivery will be established within the task order(s). As tasked, the USPTO will require contractor(s) to prepare plans (such as a Transition Plan and Operational Support Plan), methodologies, and other documents, and to advise and assist the USPTO in managing the transition from current to future USPTO procedures and systems. Items to consider during the transition include business processes and procedures, work in progress (e.g., patent or trademark applications in the pipeline), staff, information systems and databases (to include conversion of software and data), parallel operations, modification of USPTO facilities, and completion of activities required to officially turn over the installed system to Operations and Maintenance personnel. The following paragraphs describe typical functions associated with Transition.

C.3.5.1   Define Objectives

This entails defining the objectives and establishing priorities for the Transition Strategy.

C.3.5.2   Perform Transition Analysis of the Interim and Target Solutions

This involves analysis and recording the change in the operational business and technical environments when the transition from the current operations to the envisioned target processes will occur. Given the identified interim and target processes and architectures, the USPTO may require the contractor(s) to identify and analyze perceived difficulties in achieving the transition.

Task includes:
- Analyze and document functional, technical, and procedural changes
- Analyze and document facility and service changes
- Analyze and document changes to the organizational and management structure
- Analyze and document staffing changes
- Analyze and document training changes
- Analyze and document the impact of transition on existing human resources
- Analyze and document resistance to change by key managers and by the work force
- Identify any uncertainty in the transition analysis
- Analyze and document the risk associated with the transition
- Identify the standards for compliance to include a description of services for managing, formatting, and exchanging data
- Interview relevant personnel
- Assess change impact on business and technical process, people, culture, support, systems, technology, organization structure, labor issues, and facilities
- Identify management actions and decisions for transition

C.3.5.3   Develop Transition Strategy

In this area, personnel will analyze the current support requirements and capabilities in relation to existing technology and technical trends. Using the resultant information, the contractor(s) may be called upon to develop strategies for the transition of support from the current base to a new structure that meets guidelines.

C.3.5.4   Define Level of Support

This entails the identification of the level of support for functional area or activity either being supported or for which support is contemplated. The contractor(s) may be called upon to assist in the recurring steps to define, evaluate, and implement the incremental improvements needed to achieve simplified and streamlined operation of the functional and technical operational activity.

C.3.5.5   Plan Transition

This task area entails development of a proposed time-phased conversion and transition plans that define what changes will be made, how they will be implemented and how they will be maintained once implemented. The transition plan shall address integration and migration issues relating to implementing new business processes, creating new systems, applying new technologies, aligning personnel and culture, and identifying new organizational structure and facilities requirements. The plan also addresses locations, organizations, and related issues, as well as new performance target for each proposed change. The plan will include a gap analysis for the migration from the current to the target system or process and updated as required by the USPTO.

The USPTO will require the contractor(s) to develop plans for making a transition from the current process to the target process, minimizing disruptions to operations and services. The scope of transition planning shall include the measurement and analysis of the performance gap between the current activity model/process maps/change characteristics and target activity model/process maps/change characteristics, developing business or technical projects focused on reduction or elimination of the gap.   Tasks include:

C.3.5.6   Execute Transition Plans

The USPTO will require the contractor(s) advise and assist the USPTO in managing the transition from current to future USPTO procedures and systems, in accordance with the approved Business Transition Plan and Operations and Maintenance Plan. Contractor assistance includes conducting or participating in Government conducted post-transition reviews; monitoring the progress of executing through observation, interviews, and other appropriate techniques; and evaluating and documenting the success of the transition plan in transforming the business and technical environments to the interim and target solutions.

C.3.6   Operations

Operations includes the actions needed to start, run, and stop an AIS and/or its hardware infrastructure. Operations may also include:

1. User support (for example, help desk support for an AIS)
2. Production support (for example, running output reports from an AIS)
3. Certifying that an AIS and/or its infrastructure can process information with security and integrity;
4. Conducting routine data base assessments to ensure data quality and optimal data base performance is maintained;
5. Conducting periodic assessments of the AIS and/or its infrastructure to ensure the functional requirements are satisfied; and
6. Determining when the AIS and/or its infrastructure needs to be upgraded, replaced, or retired

C.3.7   Customer Training

The USPTO will require the contractor(s) to develop, and administer training programs at all levels. The items to be delivered and the schedule will be covered within the task order(s). As tasked, the contractor(s) will be called upon to provide training sessions, conduct training, arrange or coordinate training sessions from other vendors or organizations,

develop and provide training materials as required, and ensure that all developed software contains user training and help modules.

Training may take many forms to include: (1) general orientation, (2) tutorials, videotape, on-line help, or other programmed instruction, and (3) in-depth training. The kind and degree of training will depend on the category of personnel to be trained in accordance with the specific task orders and on particular training objectives which will be identified in individual task orders. For example, information technology personnel training may include management and technical training on subject areas such as the life cycle management processes, methodologies, tools used during development or maintenance activities, etc.

C.3.8   System/Software Maintenance

Maintenance is defined as the restoration of an AIS and/or its infrastructure to an operational status or the correction of problems to permit an approved AIS to run or to meet design specifications. Enhancement is defined as a change to the design specification of an AIS (e.g., a change in input, program logic, or output). USPTO will require the contractor(s) to maintain and modify AIS's in accordance with life cycle guideline and industry standard practices. The items to be delivered and the schedule for delivery will be established within the task order(s). The contractor(s) shall adhere to the procedures for identifying, approving, and responding to Discrepancy/Incident Report and Change Requests. The following describes typical functions associated with System/Software Maintenance.

C.3.8.1   Identify and Report Problems or Changes

The USPTO will identify, or will require the contractor(s) to proactively identify for USPTO approval, discrepancies and failure of operational systems; analyze the problem to determine the potential cause; determine the impact; and report of the analysis. USPTO will designate that substantive changes and redesign comprise a new system (Enterprise, Office, or Infrastructure); however, maintenance and enhancement of the existing system is still expected while the new system completes the life cycle.

C.3.8.2   Revise Existing System

The USPTO will require the contractor(s) to track and respond to Discrepancies/Incident Reports, Change Requests, and Engineering Change Requests. As tasked, the contractor(s) will design, develop, and test modified and/or partially new, fully documented systems in response to USPTO-prioritized report and requests. Depending upon the extent of the changes required, the USPTO will require the contractor(s) to adhere to full current system life cycle or tailored current system life cycle (as approved by the Chief Information Officer). The USPTO will require the contractor(s) to perform software maintenance and enhancements in a non-production environment, and transition changes into the production system after USPTO test and approval activities. The contractor(s) shall ensure that change activities are coordinated with software maintenance activities (discrepancy fixes) to eliminate duplicative efforts.

C.3.8.3   Conduct Preventative Maintenance

The USPTO will require the contractor(s) to provide preventative maintenance and repairs needed to ensure the performance of software, hardware, and other resources that the contractor(s) delivers.

C.3.9   Project-specific Software/System Engineering

The USPTO will require the Contractor(s) perform project-specific system/software engineering, metrics reporting, and architectural and security-related analyses. The items to be delivered and the schedule for delivery will be established within the task order(s). The assistance and other items include, but are not limited to, the following:

<ol type="a" start="1">
Capacity planning and performance evaluation
Simulation and modeling
Assess risks, recommend risk mitigation activities, and track progress and report on risk reduction
The USPTO will require the contractor(s) to apply reverse engineering and software reengineering disciplines to develop technical, transition, strategic, and planning documents. The USPTO also will require the contractor(s) deliver logical and physical data models and associated data elements and subject area data bases.
Human factors support (i.e., ergonomics and related subject areas)
Provide technical guidance in software engineering techniques and automated support tools

C.3.10   Product Assurance

Product assurance support will be needed throughout the system development and maintenance life cycle. The USPTO will require the contractor(s) to provide the staff and/or tools to perform or support USPTO's performance of: responding to USPTO test and evaluation results, quality assurance, configuration management, responding to IV & V results, and library maintenance. The items to be delivered and the schedule for delivery will be established within the task order(s). The assistance and other items include, but are not limited to, the functions defined below.

C.3.10.1   Respond to USPTO Test and Evaluation Results

After contractor test and integration is complete, the USPTO will require the respective contractor to respond to concerns, identified during USPTO test and evaluation of upgrades and extensions, COTS products, developed modules/subsystems/systems, and other contract deliverables. "Respond to" includes fixing unsatisfactory work products and resubmitting products for USPTO approval. The assistance and other items include, but are not limited to:

(a) Resolve concerns identified during USPTO developmental test and integration activities, including unit tests and subsystem/system integration tests

(b) Resolve concerns identified during USPTO implementation test and integration activities, including acceptance tests and production installation tests

(c) Resolve concerns identified during USPTO operational test and integration activities, including operational acceptance tests

C.3.10.2   Quality Assurance

The USPTO will require the contractor(s) to establish and maintain an effective quality assurance program to ensure the technically quality of all products and services provided under any task order. This will include, but not be limited to, software quality monitoring, methods to identify and correct quality deficiencies in products and services and methods for continuous improvement. Quality Assurance activities include development of quality assurance plans and procedures; collection and reporting of metrics, define project-specific metrics; conduct reviews; participation in any USPTO – conducted reviews, walkthroughs, or other required meetings held throughout the system development life cycle; and development of responses to the results of any USPTO quality assurance activity.

The contractor(s) shall ensure complementary interface between contractor quality assurance methods and tools and USPTO's quality assurance methods, tools, and environment. USPTO currently an IV& V contractor for quality assurance

functions. USPTO may require the System Development Integration (SDI) contractor(s) to use tools specified by the USPTO.

C.3.10.3   Configuration Management

The USPTO will require the contractor(s) to deliver documents and provide staff to assist the USPTO with the management of the USPTO system (hardware, software, and documentation) configuration, and will also require the contractor(s) to manage all configuration items under their control. Assistance and other items include, but are not limited to, the following:

(a) Develop configuration management plans and subcontractor control reports
(b) Identify configuration items
(c) Monitor and report Configuration Changes and Discrepancy Reports
(d) Provide Configuration Status Accounting Reports
(e) Use configuration management automated tools
(f) Participate in functional, physical, and other configuration audits

C.3.10.4   Respond to Independent Validation and Verification (IV& V) Results

The USPTO will require the contractor(s) to respond to and resolve concerns identified during USPTO's IV & V of deliverables throughout the system development life cycle.

C.3.10.5   Documentation Library

The USPTO will require the contractor(s) provide technical support in maintaining USPTO libraries using USPTO's prescribed automated tools or procedures as specified in task orders. The library will include: USPTO system development life cycle phases; and indices to all documents and data. Items within the library include, but are not limited to, the following:

(a) Electronic copies of relevant documents, data, and information

(b) Indexes to Documents, Data, and Information
     (1) Abstracts of all documents and data, with keywords for indexing
     (2) Indexes to all documents and data
     (3) Database(s) to track comments received and all changes made to USPTO documents and data

C.3.11   Program and Project Management

The USPTO will require the contractor(s) to prepare and deliver management of deliverables and services, using USPTO's prescribed automated tools. The items to be delivered and the schedule for delivery will be established within the task order(s). The procedures for performing these management tasks will be described in specific task orders and will follow established USPTO Project Management guidelines and TSG's, as appropriate. These functions include, but are not limited to, the following:

C.3.11.1   Management Planning

The USPTO will require the contractor(s) to prepare and deliver management plans at Contract and Task order initiation, negotiate and execute task orders, provide support and data needed for refinement of those plans, and notify USPTO of changes and problems.

C.3.11.2   Contract or Task Management

Efforts in this area entail the daily activities required for successful program and project completion. The contractor(s) shall direct, manage, and administer the accomplishment of all task orders. Each contractor shall be responsible for its respective contractor, subcontractor, or vendor personnel and performance, and shall ensure that staff technical proficiency and professional capability are maintained. The contract shall deliver periodic and ad hoc, oral and written, reports summarizing the status of work being performed. The contractor(s) also shall ensure a complementary interface between the respective contractor and USPTO project management tools and activities (USPTO currently uses the Automated Project Management System (APMS) and Microsoft Project for project management).

Each contractor shall deliver oral and written notice of all problems that impact or potentially impact the contract, deliverables, and /or schedule to the Contracting Officer. This includes:

(a) Immediate verbal notice of technical problems
(b) Immediate verbal notice of potential cost overruns and schedule delays
(c) Immediate verbal notice when 75 percent of the funds allocated have been used on individual task orders and on the entire respective contract
(d) Written notices within 24 hours of verbal notices

C.3.11.3   Regulatory Compliance

The USPTO will require the contractor(s) to deliver written and oral responses to assist the USPTO in responding to inquiries, questions, reviews, inspections, audits, and/or investigations being conducted by oversight organizations such as the Department of Commerce, General Services Administration, General Accounting Office, Office of Management and Budget, U.S. Congress, and U.S. and international patent organizations.

C.3.11.4   Technical Data Rights

The USPTO will require the contractor(s) to deliver source code and supporting manuals for all developed or modified USPTO automated information systems. The USPTO will own all technical data rights to all documents, software and other materials each contractor develops under the respective contract, in accordance with the provisions stated in Section H and Section I of this solicitation.

C.3.11.5   Engineering and Other Changes

The USPTO will require the contractor(s) to deliver proposals for changes to the USPTO system and/or respective contract. The items and assistance include, but are not limited to:

(a) Proposals for engineering and other changes
(b) Proposals for software process improvements
(c) Proposals for architectural improvements

C.3.11.6   Centralized Program Support

The USPTO will require the contractor(s) to provide general support for the program or for assigned tasks. This encompasses procurement, program management, financial management, contract and subcontract management, administrative, clerical, technical editing, document preparation, and related functions.

C.3.12.1   Acquisition of Resources

Normally, all acquisition activities will be performed by the USPTO. However, if determined to be in the best interest of the Government, USPTO will require the contractor(s) to identify, acquire, test, deliver, and install the hardware, software,

telecommunications, support resources needed for the development, integration, maintenance, and operation of USPTO AISs. Categories and examples of the resources that each contractor may be required to provide are listed below:

(a) Hardware
(b) Software tools or applications, such as tools, relational database management systems (RDBMS), project management, code and test generators and analyzers, performance monitoring tools, or software needed exclusively for the contract
(c) Multiple licenses or a site license may be procured to support concurrent software development and maintenance efforts, as deemed necessary and cost effective.
(d) Telecommunications
(e) Special courier services. It is expected that most deliverables and daily correspondence from the contractor to USPTO will be transmitted electronically using procedures established by the COTR or specified in specific task orders. Special courier services for specific tasks or deliverables must be approved by the COTR or Contracting Officer prior to use.

The contractor(s) shall provide hardware and software compliant with USPTO's then current technology architecture guideline. The contractor(s) shall be responsible for ensuring that such hardware and software shall remain compliant throughout the life of the contract.

Please note that the Government will not pay for general office equipment (e.g., personal computers, printers, monitors and related office automated software) that is necessary to perform System Development Integration (SDI) contractor or subcontractor business functions. The only time the Government will consider paying for personal computers and/or software is when it is directly related to a specific development application.

The Government will not pay for cell phones, pagers, or other personal wireless devices used by contractor personnel.

The contractor(s) shall provide justification for all personal computer and/or software purchases or any other equipment or supplies that are to be directly charged to the respective contract; only the Contracting Officer can approve such a purchase.

C.3.12.2   Support Services and Supplies

As directed in specific task orders, the contractor(s) will be required to provide other support related services and products. The items and assistance include, but not limited to:

(a) Studies into unexpected technical problems or advances
    (1) Written reports and analyses
    (2) Oral reports and briefings

(b) Quick Reaction Supplies and Services
    (1) Special purpose microcomputer hardware or software
    (2) Special purpose textbooks and technical manuals
    (3) Specialized training on USPTO components
    (4) Materials for special purpose and emergency briefings
    (5) Facilities for conferences and meeting that can not be handled by existing USPTO or contractor facilities

(c) Follow-on Support
    (1) Consulting services for delivered services and products
    (2) Expansion of delivered products

(d) Other Support
    (1) Participate in Government-led information dissemination activities (e.g., briefings professional development seminars, conferences) related to contract activities
    (2) Development and implementation facilities

(3) Other support supplies

C.4 TECHNOLOGY AND TECHNICAL/BUSINESS PROCESSES

The contractor(s) shall be proficient with the following technologies and technical/business processes (C.4.1 through C.4.8), including but not limited to:

C.4.1   Technology

1. Application servers, especially WebSphere
2. CMMI
3. Component-Based Development and software reuse
4. COTS integration, from selection through deployment
5. Development tools, especially WebSphere Studio, Rational Rose and XDE, and Advantage Gen
6. Enterprise Application Integration (EAI), including WebSphere MQ
7. Federal Enterprise Architecture (FEA)
8. Highly available systems, such as required by E-Gov
9. J2EE
10. .NET
11. Portals, especially WebSphere Portal Server
12. Rational unified process (RUP)
13. Service-Oriented Architecture
14. Patterns, Frameworks, and Templates

C.4.2   Operating Systems

1. LINUX
2. UNIX (at a minimum, HP-UX and AIX)
3. Windows XP
4. Windows servers

C.4.3   Languages

1. C
2. C++
3. C#
4. COBOL
5. JAVA
6. Visual Basic

C.4.4   Internet-based Services

1. PKI
2. VPN
3. Web Services

C.4.5   Standards

1. XML
2. UML

C.4.6　Relational database management systems

1. Oracle
2. Microsoft SQL
3. DB2

C.4.7　Business applications, tools, and skills

1. Application Portfolio Management (APM)
2. Application system performance monitoring and measurement
3. Capital Planning and Investment Control (CPIC)
4. Configuration Management
5. Document Management
6. Earned Value Management
7. Enterprise Resource Planning (ERP)
8. Full-text search and retrieval
9. Image search and retrieval
10. Life Cycle Management (LCM)
11. Workflow

C.4.8　IT-related Federal Government regulations and laws

1. Certification and Accreditation
2. Electronics Records Management (ERM)
3. Federal Information Security Act of 2002 (FISMA)
4. Section 508 of the Disabilities Act
5. Sections 501 and 504 of the Rehabilitation Act

The contractor(s) shall be knowledgeable with the following elements (C.4.9 and C.4.10) of the USPTO IT environment:

C.4.9　USPTO Business

1. E-Gov requirements on systems: robust, scaleable, and interoperable
2. USPTO 21st Century Strategic Plan

C.4.10　Current Tools in Use

1. Configuration management: Merant PVCS Dimensions, IBM Rational ClearCase, and IBM Rational ClearQuest
2. Requirements management: IBM Rational Analyst Studio 2003
3. Testing: Mercury Interactive TestDirector, WinRunner, and LoadRunner

C.5　QUALIFICATIONS OF CONTRACTOR PERSONNEL

C.5.1　GENERAL PERSONNEL QUALIFICATIONS

The contractor is expected to provide trained, knowledgeable technical personnel according to the requirements of specific task orders. Therefore, the USPTO will not provide or pay for training, conferences, or seminars to be given to contractor personnel in order for them to perform their tasks, with the exception of USPTO-specific and specialized training not obtainable outside the USPTO (e.g., patent examination process class). If it is determined

during the performance of the task order that training, conferences, or seminars not specified in the task order are required, only the Contracting Officer may approve the training.

All contractor personnel who interface with USPTO management and technical personnel must have excellent oral and written communication skills. "Excellent oral and written communication skills" is defined as the capability to converse fluently, communicate effectively, and write intelligibly in the English language.

C.5.2   LABOR CATEGORIES

The following labor categories have been provided for evaluation purposes. Please note that the titles of these categories are illustrative only. It is not required that the Contractor provide personnel with these exact titles; rather, personnel shall meet the requirements listed.

Below is a listing of the labor categories that the USPTO considers necessary under the scope of this contract. As necessary, additional labor categories may be added or deleted in order to fulfill staffing requirements under the scope of the contract.

Those categories designated as Program Manager (Key), Deputy Program Manager, Infrastructure Architect, Security Architect, Solutions Architect, or Data Architect, or at the level of Principal shall be capable of negotiating and making binding decisions for the company on contract task orders.

SDI Labor Categories

Title	Category Code
Program Manager (Key)	01
Deputy Program Manager	02
Infrastructure Architect	03
Security Architect	04
Solutions Architect	05
Data Architect	06
Information Architect	07
Software Architect	08
Principal Software Engineer	09
Senior Software Engineer	10
Junior Software Engineer	11
User Interface Engineer	12
Principal Systems Engineer	13
Senior Systems Engineer	14
Junior Systems Engineer	15
Principal Systems Analyst/Programmer	16
Senior Systems Analyst/Programmer	17
Junior Systems Analyst/Programmer	18
Principal Systems Programmer	19
Senior Systems Programmer	20

DEFINITIONS

01 Program Manager (Key)--Shall be responsible for the overall contract performance and shall not serve in any other capacity under this contract. Organizes, plans, directs, staffs, and coordinates the overall program effort; manages contract and subcontract activities as the authorized interface with the Contracting Officer, COTR, Government management personnel, and customer agency representatives; ensures compliance with Federal rules and regulations. Shall have demonstrated communications skills with all levels of management. Establishes and alters (as necessary) management structure to effectively direct contract support activities. Meets and confers with USPTO management and technical personnel regarding the status of specific contractor activities and problems, issues, or conflicts requiring resolution. Shall be capable of negotiating and making binding decisions for the company. Shall have extensive experience and proven expertise in managing similar multi-task contracts of this type and complexity. Shall have extensive experience supervising personnel. Shall have a thorough understanding and knowledge of the principles and methodologies associated with program management, contractor management, and financial management. Shall have experience and knowledge in subcontractor management, quality assurance metrics and techniques, and configuration management tools.

02 Deputy Program Manager--Shall serve as Deputy to the Program Manager, and act for the Program Manager in his/her absence. Shall have extensive experience and proven expertise in areas similar to those of the Program Manager and in managing similar multi-task contracts of this type and complexity.

03 Infrastructure Architect-- The Infrastructure Architect designs platform solutions to support applications, including their integration with database, network, and storage solutions. Possesses extensive detailed working knowledge of and acumen in the employment of information technology, and enterprise architecture best practices, including, but not limited to, logical and physical data architectures, network communications, nodes, operating systems, applications, data base servers, application servers, web servers, server consolidation, server performance, middleware, and telecommunications. Provides competent leadership, and highly specialized and technical guidance, to complex infrastructure architectural challenges. Simultaneously plans, manages, and provides technical oversight for infrastructure architecture activities. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and specific infrastructure architecture discipline(s) described in an actual task order proposal.

04 Security Architect-- The Security Architect learns the key security and privacy requirements and uses them to select the appropriate technology and design secure business solutions. The range of solutions extends to the appropriate use of PKI, intrusion detection, VPNs, single sign-on, firewalls, and all elements of application-level security. Possesses extensive knowledge and experience in information technology security design, operations, encryption, information access, and authentication processes.
Provides competent leadership, and highly specialized and technical guidance, to complex security-related architectural challenges. Simultaneously plans, manages, and provides technical oversight for security architecture activities. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and specific security architecture discipline(s) described in an actual task order proposal.

05 Solutions Architect-Provides competent leadership, and highly specialized and technical guidance, to complex solutions architecture challenges, including but not limited to, the evaluation of technologies, including Java and J2EE, software including COTS, products, custom and reusable components, internal systems, data exchange tools, and application integration methodologies.   Provides expert advice on industry and solution trends to customers in analyzing and planning their current and future IT needs. Provides expertise in applying the enterprise architecture for business or technical activities to a specific system or function. Simultaneously plans, manages, and provides technical oversight for solutions architecture activities. Gathers customer's business requirements, translating those requirements into cost-effective solution strategies, frameworks and architectures; guides the implementation of these solutions to deliver high quality results to meet or exceed customer expectations in a timely manner. May act as Chief Architect on a project team to lead and oversee solution implementation and project delivery. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and specific solutions architecture discipline(s) described in an actual task order proposal.

06   Data Architect-- The Data Architect designs databases to support the development of application solutions and is responsible for the design of the data used, updated, and produced by the application. The data architect uses data modeling to help generate application solutions. Provides competent leadership, and highly specialized and technical guidance, to complex data architectural challenges. Simultaneously plans, manages, and provides technical oversight for data architecture activities. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and specific data architecture discipline(s) described in an actual task order proposal.

07   Information Architect-Provides competent leadership, and highly specialized and technical guidance, to complex information architecture challenges, including but not limited to, the evaluation of technologies, including knowledge management (including content management tools, automatic categorization and clustering tools, tools for creating and managing thesauri), web site maps, content maps, page schematics, construction processes, and accessibility.   Provides expert advice on industry and information trends to customers in analyzing and planning their current and future IT needs. Provides expertise in applying the enterprise architecture for business or technical activities to a specific information system or information function, ensuring consistency and correctness of system information. Simultaneously plans, manages, and provides technical oversight for information architecture activities. Gathers customer's business requirements, translating those requirements into cost-effective information architectural strategies and frameworks; guides the implementation of these to deliver high quality results to meet or exceed customer expectations in a timely manner, with an emphasis on ease of navigation, simplicity of design for the customer as well as the development team. May act as Chief Architect on a project team to lead and oversee implementation and project delivery. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for

one or more task orders. Has extensive experience in project management and specific information architecture discipline(s) described in an actual task order proposal.

08   Software Architect-Provides competent leadership, and highly specialized and technical guidance, to complex software architecture challenges, including but not limited to, the evaluation of technologies, including architectural patterns, architectural modeling (especially using UML), architectural views, component specification, and design principles (such as encapsulation and system decomposition). Provides expert advice on industry and software trends to customers in analyzing and planning their current and future IT needs. Provides expertise in applying the enterprise architecture for business or technical activities to a specific information system or software function. Simultaneously plans, manages, and provides technical oversight for software architecture activities. Gathers customer's business requirements, translating those requirements into cost-effective software strategies, frameworks and architectures; guides the implementation of these to deliver high quality results to meet or exceed customer expectations in a timely manner, from requirements to specifications, to validation and testing. May act as Chief Architect on a project team to lead and oversee implementation and project delivery. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and specific software architecture discipline(s) described in an actual task order proposal.

09   Principal Software Engineer--Provides competent leadership, and highly specialized and technical guidance, to complex software engineering challenges. Simultaneously plans, manages, and provides technical oversight for software engineering activities, including, but not limited to, analysis and design; software development cost and schedule estimation; use of accepted software engineering practices, design techniques, and tools; and review of legacy systems. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and specific software engineering disciplines described in an actual task order proposal.

10   Senior Software Engineer--Provides highly technical and specialized guidance, and solutions to, complex software engineering challenges. Performs software engineering analysis and design; estimates software development costs and schedule; leads systems design, development, and integration activities using accepted software engineering practices and design techniques. May serve as Task Order Manager for one or more task orders. Has substantive experience in specific software engineering discipline(s) described in an actual task order proposal.

11   Junior Software Engineer--Provides technical and specialized solutions to complex software engineering challenges. Performs software engineering analysis and design; estimates software development costs and schedule; leads systems design, development, and integration activities using accepted software engineering practices and design techniques.   Typically required to work as a team member under supervision and management of senior personnel. Has experience in the specific software engineering discipline(s) described in an actual task order proposal.

12   User Interface Engineer--Provides highly technical and specialized guidance, and solutions to, complex user interface challenges, including but not limited to human factors engineering, accessibility engineering, security software engineering for Web-based, Windows, and mobile platforms such as PDAs and for user interface implementation of secure-messaging products. Performs software engineering analysis and design; estimates software development costs and schedule; leads systems design into development and integration activities using accepted software engineering practices and design techniques. May serve as Task Order Manager for one or more task orders. Has substantive experience in specific user interface design and engineering discipline(s) described in an actual task order proposal.

13   Principal Systems Engineer--Provides competent leadership and highly specialized and technical guidance to complex system engineering challenges. Simultaneously plans, manages, and provides technical oversight for system engineering activities. Ensures systems and applications are compliant with standards for open systems architectures, reference models, and profiles. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and specific system engineering discipline(s) described in an actual task order proposal.

14   Senior Systems Engineer--Provides highly technical and specialized guidance, and solutions to, complex system engineering challenges. Performs analyses, studies, and reviews for architecture, standards, and system life cycle activities; evaluates analytically and systematically problems of workflows, organization, planning, interoperability, portability, and scalability and develops appropriate corrective action; and ensures systems and applications are compliant with standards for open systems architectures, reference models, and profiles as they apply to the specification and implementation of solutions on the application platform, across the application program interface, and the external environment/software application. May serve as Task Order Manager for one or more task orders. Has substantive experience in the specific system engineering discipline(s) described in an actual task order proposal.

15 Junior Systems Engineer-- Provides technical and specialized solutions to complex software engineering challenges. Performs analyses, studies, and reviews for architecture, standards, and system life cycle activities; evaluates analytically and systematically problems of workflows, organization, planning, interoperability, portability, and scalability and develops appropriate corrective action; and ensures systems and applications are compliant with standards for open systems architectures, reference models, and profiles as they apply to the specification and implementation of solutions on the application platform, across the application program interface, and the external environment/software application. Typically required to work as a team member under supervisions and management of senior personnel. Has experience in the specific systems engineering discipline(s) described in an actual task order proposal.

16 Principal Systems Analyst/Programmer. Provides competent leadership and administrative direction, to complex information systems challenges. Simultaneously plans, manages, and provides technical oversight for systems analysis and software development activities. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive

experience in project management and specific analysis and programming discipline(s) described in an actual task order proposal.

17 Senior Systems Analyst/Programmer-- Provides highly technical and specialized guidance, and solutions to, complex information systems challenges. Analyzes, designs, codes, and tests system software components, databases, and applications possessing a wide range of capabilities. Develops plans, analyzes the problem and information to be processed; defines the problem, and develops system requirements and program/technical specifications; develops programs, tests, debugs, and refines the software; prepares program and customer-level documentation; enhances and maintains software; and provides technical direction to junior programmers. May serve as Task Order Manager for one or more task orders. Has substantive experience in the specific analysis and programming discipline(s) described in an actual task order proposal.

18 Junior Systems Analyst/Programmer--Performs analysis, design, coding, and testing for system software components, databases, and applications possessing a wide range of capabilities (e.g., engineering, business, and records management functions); develops requirements and technical specifications; prepares program and customer-level documentation; assists senior analysts in preparing input and test data for the proposed system; and enhances and maintains software. Typically required to work as a team member under the supervision of direction of senior personnel. Has experience in the specific analysis and programming discipline(s) described in an actual task order proposal.

19 Principal Systems Programmer-- Provides competent leadership, and highly specialized and technical guidance, to complex systems programming challenges.   Simultaneously plans, manages, and provides technical oversight for systems programming activities. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and specific systems programming discipline(s) described in an actual task order proposal.

20 Senior Systems Programmer-- Provides highly technical and specialized guidance, and solutions to, complex systems programming challenges. Performs analysis, design, coding, and testing of operating system and utility program components of automated information systems. Modifies and maintains existing software as well as creates special-purpose software to maintain efficiency and integrity between systems and applications. Develops plans, analyzes the problem and information to be processed; defines the problem, and develops system requirements and program/technical specifications; provides technical direction to junior programmers. May serve as Task Order Manager for one or more task orders. Has substantive experience in the specific systems programming discipline(s) described in an actual task order proposal.

21 Junior Systems Programmer-- Performs analysis, design, coding, and testing of operating system and utility program components of automated information systems. Modifies and maintains existing software as well as creates special-purpose software to maintain efficiency and integrity between systems and applications. Typically required to work as a team member under the supervision of direction of senior personnel. Has experience in the specific systems programming discipline(s) described in an actual task order proposal.

22 Principal IT Security Analyst-- Provides competent leadership, and highly specialized and technical guidance, to complex IT Security challenges.   Simultaneously plans, manages, and

provides technical advice and oversight for IT Security activities, including, but not limited to, the design and implementation of appropriate access protection; system integrity/reliability; audit control; system recovery methods and procedures; prevention of breaches, intrusions, and/or system abuses; awareness training; and compliance with federal and agency IT security policy directives and regulations. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and IT Security discipline(s) and technologies described in an actual task order proposal.

23 IT Security Analyst-- Performs activities including, but not limited to, design and implementation and support of appropriate access protection; system integrity/reliability; audit control; system recovery methods and procedures; prevention of breaches, intrusions, and/or system abuses; awareness training; and compliance with federal and agency IT security policy directives and regulations. May serve in senior or junior positions, depending on experience. May serve as Task Order Manager for one or more task orders. Has experience in IT Security discipline(s) and technologies described in an actual task order proposal.

24 Principal Network Engineer-- Provides competent leadership, and highly specialized and technical guidance, to Network Engineering challenges. Has advanced experience in the design, implementation, installation, configuration, and maintenance of network devices such as routers, hubs, and gateways to enable connectivity between servers, local and wide area networks, etc. Simultaneously plans, manages, and provides technical oversight for Network Engineering activities. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to subordinates, and formulates and enforces work standards. Coordinates with the Program Manager and Deputy Program Manager to ensure problem resolution and customer satisfaction. May serve as Task Order Manager for one or more task orders. Has extensive experience in project management and Network Engineering discipline(s) and technologies described in an actual task order proposal.

25 Network Engineer-- Has experience in the design, implementation, installation, configuration, and maintenance of network devices such as routers, hubs, and gateways to enable connectivity between servers, local and wide area networks, etc. May serve in senior or junior positions, depending on experience. May serve as Task Order Manager for one or more task orders. Has experience in Network Engineering discipline(s) and technologies described in an actual task order proposal.

26 Senior Systems Administrator-- Provides highly specialized and technical guidance to System Administration challenges for systems of varying size and complexity. Performs day-to-day monitoring of system activities, analysis of system utilization and resources, capacity control, performance tuning, coordination of system upgrades or fixes, adding/deleting users from the system, and generates reports as required. Provides direction to Junior Systems Administrators. May serve as Task Order Manager for one or more task orders. Has substantive experience in System Administration discipline(s) and technologies described in an actual task order proposal.

27 Junior Systems Administrator--Typically required to work as a team member under the supervision of senior personnel. Performs day-to-day monitoring of system activities, analysis of system utilization and resources, capacity control, performance tuning, coordination of system upgrades or fixes, adding/deleting users from the system, and generates reports as required. Has

experience in System Administration discipline(s) and technologies described in an actual task order proposal.

28 Senior Data Administrator-- Provides highly specialized and technical guidance to Data Administration challenges. Manages and maintains data models and repositories, ensuring consistency and conformance with established guidelines and agency policy. Advises on data element definition, data presentation and analysis and tools. Provides direction to Junior Data Administrators. May serve as Task Order Manager for one or more task orders. Has substantive experience in Data Administration discipline(s) and technologies described in an actual task order proposal.

29 Junior Data Administrator--Typical required to work as a team member under the supervision of senior personnel. Manages and maintains data models and repositories, ensuring consistency and conformance with established guidelines and agency policy. Advises on data element definition, data presentation and analysis and tools. Has experience in Data Administration discipline(s) and technologies described in an actual task order proposal.

30 Senior Database Administrator-- Provides highly specialized and technical guidance, to Database Administration challenges. Performs duties including the monitoring and maintenance of databases, installation of database software upgrades, monitoring of database backups, standardization and implementation of databases to improve the management of production and test environments. Supports users by resolving problems with applications' databases. Provides direction to Junior Database Administrators. May serve as Task Order Manager for one or more task orders. Has substantive experience in Database Administration discipline(s) and technologies described in an actual task order proposal.

31 Junior Database Administrator-- Typically required to work as a team member under the supervision of senior personnel. Performs duties including the monitoring and maintenance of databases, installation of database software upgrades, monitoring of database backups, standardization and implementation of databases to improve the management of production and test environments. Supports users by resolving problems with applications' databases. Has experience in Database Administration discipline(s) and technologies described in an actual task order proposal.

32 Senior Network Administrator--Provides highly specialized and technical guidance, to Network Administration challenges. Has experience in the installation, configuration, maintenance and administration of file servers and other devices with multiple network operating systems. Provides direction to Junior Network Administrators. May serve as Task Order Manager for one or more task orders. Has substantive experience in project management and Network Administration discipline(s) and technologies described in an actual task order proposal.

33 Junior Network Administrator--Has experience in the installation, configuration, maintenance and administration of file servers and other devices with multiple network operating systems. Typically required to work as a team member under the supervision of senior personnel. Has experience in Network Administration discipline(s) and technologies described in an actual task order proposal.

34 Network Support Technician-- Possesses network technical support experience consisting of installation, setup/configuration, relocation, trouble-shooting, diagnostics, maintenance, and

repair of networking and related equipment. Must be experienced with trouble-shooting and supporting networking environments. May serve in senior or junior positions depending on experience. Has experience in the specific network technical support discipline(s) and technologies described in an actual task order proposal.

35 Senior Computer Operator--Provides highly specialized and technical guidance to Computer Operations challenges. Possesses substantive experience in computer operations, including, but not limited to, peripheral operations of DASD, tape/cartridge drives and management, ATLs, optical storage devices, and printers, job scheduling and tracking, production control, output distribution, shift management, console operations, automated tools implementation and operations and telecommunications, as required. Provides direction to junior computer operators. Has substantive experience in Computer Operations discipline(s) and technologies described in an actual task order proposal.

36 Junior Computer Operator--Performs work in computer operations, including but not limited to peripheral operations of DASD, tape/cartridge drives and management, ATLs, optical storage devices, and printers, job scheduling and tracking, production control, output distribution, console operations, automated tools implementation and operations and telecommunications, as required. Works under the direction of Senior personnel. Has experience in computer operations discipline(s) and technologies described in an actual task order proposal.

37 Help Desk Manager--Provides highly specialized and technical guidance and leadership skills to Help Desk management challenges. Has substantive experience in managing call centers, providing customer support for large user communities in person, on-line, or via the telephone, as appropriate, resolving customer problems or requests for assistance in various application systems, hardware, office automation functions, or network connectivity. Provides direction to junior help desk support specialists. Has substantive experience in help desk management discipline(s) and technologies described in an actual task order proposal.

38 Help Desk Support Specialist--Works as a team member under the direction of senior level personnel. Provides customer support for large user communities in person, on-line, or via the telephone, as appropriate, resolving customer problems or requests for assistance in various application systems, hardware, office automation functions, or network connectivity. Has experience in help desk management discipline(s) and technologies described in an actual task order proposal.

39 Senior Field Engineer-- Provides highly specialized and technical guidance to Field Engineering challenges.   Simultaneously plans, manages, and provides technical oversight for Field Engineering activities. Possesses advanced hardware/software technical support experience consisting of installation, setup/configuration, relocation, trouble-shooting, diagnostics, maintenance, and repair of PCs, printers, and other peripheral equipment. Must be experienced with trouble-shooting and supporting operating systems and environments. Provides direction to Junior Field Engineers. May serve as Task Order Manager for one or more task orders. Has substantive experience in project management and Field Engineering discipline(s) and technologies described in an actual task order proposal.

40 Junior Field Engineer-- Possesses hardware/software technical support experience consisting of installation, setup/configuration, relocation, trouble-shooting, diagnostics, maintenance, and repair of PCs, printers, and other peripheral equipment. Must be experienced with trouble-shooting and supporting operating systems and environments. Typically works under the

direction of senior personnel.   Has experience in the specific field engineering discipline(s) and technologies described in an actual task order proposal.

41 Senior Training Specialist-- Provides highly specialized and technical guidance to IT training challenges.   Simultaneously plans, manages, and provides technical oversight for IT Training activities. Supports the planning, scheduling, and integration of training activities for specific IT systems, or for general IT training programs. Develops training plans and training programs for various levels of IT staff or systems users, and develops and conducts courses, including on-line courses.   Provides direction to Junior Training Specialists. Has substantive experience in project management and Training discipline(s) and technologies described in an actual task order proposal.

42 Junior Training Specialist-- Supports the planning, scheduling, and integration of training activities for specific IT systems, or for general IT training programs. Develops training plans and training programs for various levels of IT staff or systems users, and develops and conducts courses, including on-line courses. Typically required to work as a team member under supervision and management of senior personnel. Has experience in specific training discipline(s) and technologies described in an actual task order proposal.

43 Quality Assurance Analyst--Provides specialized guidance to complex system quality management challenges. Ensures that systems are compliant with established standards and requirements. Provides advice on Quality Assurance best practices. May serve in senior or junior positions, depending on experience. May serve as Task Order Manager for one or more task orders. Has experience in quality management discipline(s) and technologies described in an actual task order proposal.

44 Configuration Management Specialist-- Provides specialized guidance to complex system configuration management challenges. Ensures that systems are compliant with established standards and requirements. Provides advice on Configuration Management best practices and tools. May serve in senior or junior positions, depending on experience. May serve as Task Order Manager for one or more task orders. Has experience in configuration management discipline(s) and technologies described in an actual task order proposal.

45 Subject Matter Specialist--Performs as a consultant in highly specialized subject areas such as personnel (Federal Government), training, patents, trademarks, finance and other areas as required by specific task orders. Provides highly technical and/or specialized guidance concerning IT solutions to complex information processing problems related to the subject matter field; performs analyses and studies; prepares reports and gives presentations; works independently or as a member of a team. Has knowledge and skills applicable to an actual Task Order proposal and so recognized in the professional community as an expert in the field.

46 Documentation/Publication Specialist-- Provides highly technical and specialized guidance, and solutions to, documentation and publication challenges. Participates in activities involving compiling, organizing, and publishing technical and other materials related to information technology and information systems, and business or agency publications, including on-line documentation and/or publications. Provides expertise and support in the development of technical material, user and training manuals, system design criteria, operational concepts and procedures, storage and retrieval procedures, agency publications and published documentation, and other documentation. Consults with information processing and customer personnel to define requirements and available sources of information and industry best practices; provides technical guidance on methods to clarify intent, accuracy, completeness, conformity with established

standards, and formatting of life cycle and other documentation guidelines based on evolving IT technology and software development tools. Makes recommendations in regard to documentation or publishing policies, standards, and procedures, and new technologies. Has substantive experience in documentation/publication discipline(s) and technologies described in an actual task order proposal.

47 Technical Writer/Editor--Assists in collecting and organizing information required for preparation of deliverables; ensures the use of proper technical terminology; performs technical writing, editing, proofreading, and integration of computer-based material to produce document deliverables; and translates technical information into clear, readable documents to be used by technical and non-technical personnel. Has knowledge and skills in technical documentation and presentation techniques, to include technical writing, technical proofreading, and technical editing. Demonstrates excellent command and articulation of the English language. Has superior grammatical skills.

48 Business Support Specialist-- Provides supervision and/or support in the administration of the contract, including financial operations and program control. Establishing, maintaining and submitting accurate financial data to USPTO and other federal agencies, as required. Serves in senior or junior positions, depending on experience. Maintains contract and task order budget baselines, funding status, and commitment status. Responds to ad hoc requests regarding contract and task order budgets, and other financial information and issues. Manages or supports the development and control of project plans, Task Management Plans, and the documentation and production schedule and process of contract deliverables. Performs subcontractor administration and creates and manages subcontractor agreements. Provides management and/or support to ensure compliance with contract requirements and company policies and procedures. Demonstrates knowledge and experience in the business support functions related to the management of federal contracts.

49 Administrative/Clerical--Supports the development of all contract deliverables, including preparation of documentation. Provides administrative support such as typing, editing of word processing, and other clerical functions. Provides administrative support to contractor management staff. Has knowledge and skills in clerical and administrative support functions, office support software packages, and office equipment such as printers, copiers, etc. Demonstrates excellent command and articulation of the English language. Has superior grammatical skills.